

## EXHIBIT "A"

Figure 5. Preferably the frame 52 is formed of metal members suitably secured together by fasteners 54, which may be screws or bolts, or in some other way. An L-shaped dog-leg axle receptor 56 is secured to each end of the frame 52 and accepts at the sleeve of receptor 56 disposed at each end, an axle 58 in non-rotatably relation. Thus, when the two end axles 58 are rotated, the frame 52 and the series of assemblies 10 and/or 40 carried by the frame 52 are correspondingly rotated for the purpose of preserving perpendicularity with rays of the sun, as explained herein in greater detail.

The frame 52 comprises two spaced parallel longitudinally directed side rails 60 62. The perpendicular distance between the side rails 60 62 is essentially equal to the width of the panels 10, 40, which are placed therebetween. A ~~sunlight-deflecting section~~ frame 62 is joined to each rail 60 62, using any suitable commercially available fastening technique, at interface sites 64. When frames 52 and 62 are both formed of steel or other suitable metal, welding at sites 64 may be utilized. Each frame 62 comprises a distal, longitudinally directed frame element 66 and spaced end cross braces 68 and intermediate cross braces 71. Each frame 62 may be comprised of separate elements or members suitably fastened together, such as by welding or use of commercial fasteners, so as to comprise a rigid, elongated and rectangular frame.

In the assembled condition, as shown best in Figure 5, the spaced frames 62 are upwardly divergent and, therefore, each forms an acute angle in respect to the rays of the sun, the acute angle being appropriately selected by those of skill in the art to accommodate delivery of a greater amount of sunlight to the impingement face 18 of each flat plate panel 10, 40. The selected acute angle for the two associated ~~deflection~~ frames 62 is maintained by a pair of diagonal support members 70 and 72 at each end. The members 70 and 72 rigidly connect between the end cross members 68 disposed at each end of a row of flat plate panels 10, 40. As best shown in Figure 5, the diagonal supports 70

## EXHIBIT “B”

Figure 5. Preferably the frame 52 is formed of metal members suitably secured together by fasteners 54, which may be screws or bolts, or in some other way. An L-shaped dog-leg axle receptor 56 is secured to each end of the frame 52 and accepts at the sleeve of receptor 56 disposed at each end, an axle 58 in non-rotatably relation. Thus, when the two end axles 58 are rotated, the frame 52 and the series of assemblies 10 and/or 40 carried by the frame 52 are correspondingly rotated for the purpose of preserving perpendicularity with rays of the sun, as explained herein in greater detail.

The frame 52 comprises two spaced parallel longitudinally directed side rails 60. The perpendicular distance between the side rails 60 is essentially equal to the width of the panels 10, 40, which are placed therebetween. A frame 62 is joined to each rail 60, using any suitable commercially available fastening technique, at interface sites 64. When frames 52 and 62 are both formed of steel or other suitable metal, welding at sites 64 may be utilized. Each frame 62 comprises a distal, longitudinally directed frame element 66 and spaced end cross braces 68 and intermediate cross braces 71. Each frame 62 may be comprised of separate elements or members suitably fastened together, such as by welding or use of commercial fasteners, so as to comprise a rigid, elongated and rectangular frame.

In the assembled condition, as shown best in Figure 5, the spaced frames 62 are upwardly divergent and, therefore, each forms an acute angle in respect to the rays of the sun, the acute angle being appropriately selected by those of skill in the art to accommodate delivery of a greater amount of sunlight to the impingement face 18 of each flat plate panel 10, 40. The selected acute angle for the two associated frames 62 is maintained by a pair of diagonal support members 70 and 72 at each end. The members 70 and 72 rigidly connect between the end cross members 68 disposed at each end of a row of flat plate panels 10, 40. As best shown in Figure 5, the diagonal supports 70

## EXHIBIT "C"

## **IMPROVED FLAT PLATE PANEL SOLAR ELECTRICAL GENERATORS AND METHODS**

### **CONTINUITY**

This application is a continuation-in-part of my copending U.S. Patent Application Serial No. 10/458,917, filed June 10, 2003, now abandoned, which is a continuation of U.S. Patent Application Serial No. 10/251,709, filed September 21, 2002, now U.S. Patent 6,696,637, which is a continuation of U.S. Patent Application Serial No. 09/867,196 filed May 29, 2001, now U.S. Patent 6,498,290.

### **FIELD OF THE INVENTION**

The present invention relates generally to transformation of sunlight into electricity and, more particularly to improvements in flat plate panel solar electrical generators by which a greater magnitude of sunlight is perpendicularly concentrated on the flat plate panel to increase the amount of electricity derived therefrom and from which thermal energy is beneficially obtained.

### **BACKGROUND**

Flat plate panel conversion of sunlight to electricity is well known. Typically, one or more flat plate panels are mounted in a fixed position on the roof of a building or other exposed location. With the possible exception of a few seconds per day, the rays of the sun are not perpendicular but rather angularly disposed in two respects (altitude and azimuth) to the surface of each stationary flat plate panel upon which the sunlight is impinged. This lack of perpendicularity results in inefficient generation of electricity because some of the sunlight is deflected off the impingement face of each flat plate panel. Also, no use is made of the rays of sunlight which are directly adjacent to but somewhat out of alignment with the impingement surface of each flat plate panel.

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Paul Lawheed

Serial No.: 10/616,200

Filed: 9 July 2003

For: IMPROVED FLAT PLATE PANEL SOLAR  
ELECTRIC GENERATORS AND METHODS

Docket: 8639

Art Unit: 1753

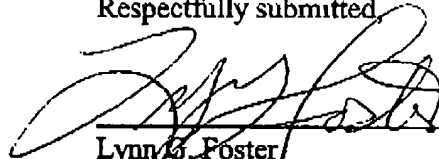
Examiner: Alan D. Diamond

CERTIFICATION OF FILING BY FACSIMILE TRANSMISSIONHonorable Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

I hereby certify the attached AMENDMENT was transmitted by facsimile to Examiner  
Alan D. Diamond at (703) 872-9306 on the date indicated below.

Respectfully submitted

Lynn G. Foster  
Attorney for Applicant

June 28, 2005

602 East 300 South  
Salt Lake City, UT 84102  
Telephone: (801) 364-5633

## EXHIBIT "D"

## **IMPROVED FLAT PLATE PANEL SOLAR ELECTRICAL GENERATORS AND METHODS**

### **CONTINUITY**

This application is a continuation-in-part of my copending U.S. Patent Application Serial No. 10/458,917, filed June 10, 2003, now abandoned, which is a continuation of U.S. Patent Application Serial No. 10/251,709, filed September 21, 2002, now U.S. Patent 6,696,637, which is a continuation of U.S. Patent Application Serial No. 09/867,196 filed May 29, 2001, now U.S. Patent 6,498,290.

### **FIELD OF THE INVENTION**

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### **BACKGROUND**

Flat plate panel conversion of sunlight to electricity is well known. Typically, one or more flat plate panels are mounted in a fixed position on the roof of a building or other exposed location. With the possible exception of a few seconds per day, the rays of the sun are not perpendicular but rather angularly disposed in two respects (altitude and azimuth) to the surface of each stationary flat plate panel upon which the sunlight is impinged. This lack of perpendicularity results in inefficient generation of electricity because some of the sunlight is deflected off the impingement face of each flat plate panel. Also, no use is made of the rays of sunlight which are directly adjacent to but somewhat out of alignment with the impingement surface of each flat plate panel.